intermediate between *Equus stenonis,* Cocchi, and the Taubach form, and *Elephas antiquus.*

A full description of the site and of the manner in which the discovery was made, with a careful compilation of the animals the remains of which have been found in the deposit, constitute the first portion of the book. Two other parts are concerned with the remains themselves, viz. with the jaw and with the teeth. The latter are typically human, and permit of no doubt as to the mandible being that of a man. The canines are not unduly prominent, while the dimensions of the teeth are within the variation limits of living man. The most striking features of the jaw, which, it may be said, was divided into two parts by the spade of a workman, are the absence of a chin, the thickness of the body, the width of the ascending ramus, and the low level of the coronoid process. Correlated with the absence of a chin is a well-marked incisura submentalis, the lower border of the symphysis being 50 mm. above that of the lateral portion of the body. The sulcus supramarginalis, interdigastric spine, trigonum postmolare, and præcoronoid fossa recognised by Klaatsch in Australian mandibles are also apparent in the specimen. A small tubercle lies immediately below the mental foramen; a similar excrescence has been noted by Gorjanović-Kramberger in the jaw fragment Krapina H and by Klaatsch in recent Australians. The geniohyoglossus muscle arose from a groove, the genio-hyoid from a rounded prominence.

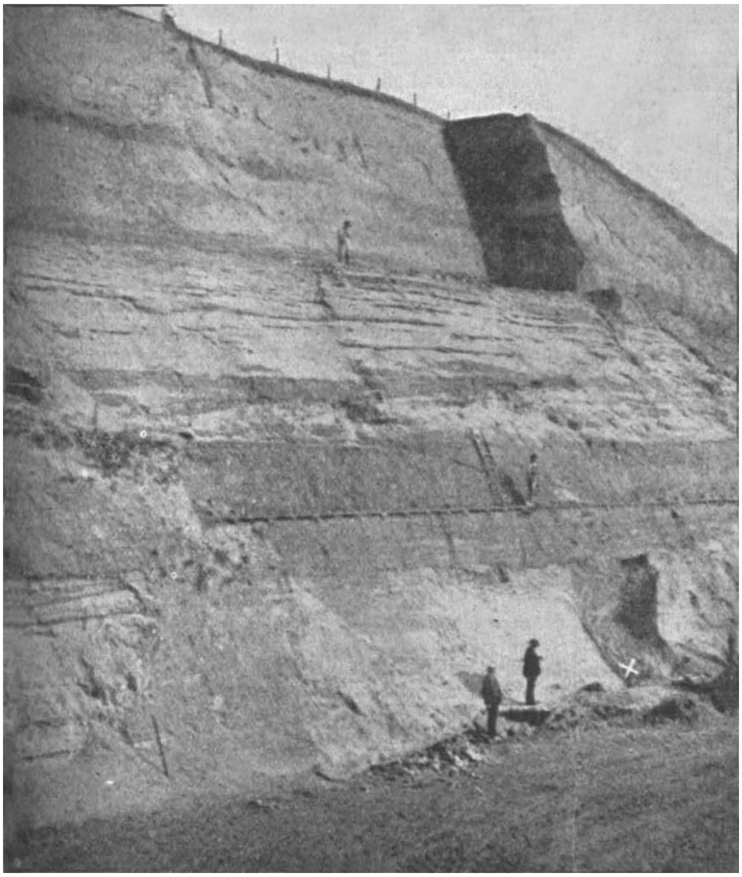

FIG. 3.—Position in which the mandible was found, Mauer, near Heidelberg.

The width of the ascending ramus is 60 mm. The coronoid process is blunt and rounded. The condyloid process is chiefly remarkable for the large size of its articular facet.

The lower border of the mandible passes backwards and only slightly outwards from the symphysis to the junction of body and ramus, where it suddenly takes a more outward curve. The border thus has a contour not unlike that of a trefoil window.

Comparisons are made between the Heidelberg jaw, those of Spy and Krapina, and, in addition, those of recent Australians and Negroes. The author concludes that the Heidelberg specimen surpasses all in its combination of primitive characters, that it is a generalised type from which all jaws, ancient and recent, can be readily derived, that the Spy mandibles resemble it most, the Krapina examples exhibiting marked but mere individual variations.

As to the teeth, all the molars are quinquicuspid; the second molars are the largest; the first and third molars are of equal size. Certain teeth were fractured by the spade, the pulp cavity being laid open. It was possible to measure the diameters of the pulp cavity and the thickness of the wall in the case of the premolars and first two molars of the left side; these measurements were considerably in excess of those which obtain in recent Europeans. The jaw was, further, Röntgen-rayed, little additional information being, however, supplied.

The figures, which are mainly photographs, number forty-eight, and are disposed on thirteen plates. They leave nothing to be desired.

The whole volume reflects the greatest credit on Dr. Otto Schoetensack. Anthropologists are to be congratulated that the work of describing what there is every reason for thinking are the oldest remains of man fell into such capable hands.

WILLIAM WRIGHT.

A GREAT ENDOWMENT AND ITS INFLUENCE.[1]

IT was in April, 1905, that Mr. Carnegie added to his many benefactions in the interest of education by handing over to a board of trustees of his own selection a sum of 2,000,000*l.*, the revenue of which was to provide pensions for the teachers of universities, colleges, and technical schools in the United States, Canada, and Newfoundland. The trustees were nearly all presidents of universities or colleges—the few others being men of conspicuous eminence in business and finance. In 1906 the trust was incorporated by charter under the title of the Carnegie Foundation for the Advancement of Teaching. In his deed of gift the donor stated that the fund was to be applied without regard to race, sex, creed, or colour. He did not "presume to include," among the institutions which were to benefit, State-supported universities or colleges on the ground that "they might prefer that their relations should remain exclusively with the State." In response, however, to the desire of the professors in State universities, expressed through their National Association, Mr. Carnegie in March, 1908, increased his original gift by 1,000,000*l.* in order that State institutions of the requisite academic grade which "apply through their governing boards, with the sanction of the legislature," might also participate in the benefits of the foundation.

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[1] The Carnegie Foundation for the Advancement of Teaching. Third Annual Report of the President and Treasurer, October, 1908.

The annual reports of this foundation show how far-reaching may be the effects of a wisely administered, wealthy trust, even though it has been established for what may seem a narrow and special purpose. These effects will be all the more important now that the State institutions may be admitted to share in the grants. In Scotland, the Carnegie Trust, which devotes part of its income to the payment of fees at the universities, has exercised a considerable influence in raising the standard of university, professional, and technical education by granting its favours only to those who reach a high preliminary standard of attainment, and who show fair ability and sufficient industry in their university studies. So there are already clear proofs that the Foundation for the Advancement of Teaching is quickening the movement in America for improved secondary education, raising the standard of entrance to college and university, and thereby uplifting the whole of higher education to a worthier plane. The foundation is making good the claim of its president that it should be considered not "as a charity, but an educational agency," which is making for "educational coherence and educational unity," and is taking into account "the interests not alone of a community or of a section, but of a continent." The trustees came to the conclusion that their true task is to consider the merits, not of individuals, but of colleges; to decide upon fair and wise standards, and then to admit to the system of retiring allowances such institutions as comply with the standards, and come within the provisions of the charter. To accomplish this, it was necessary to collect facts concerning the various institutions, such as "their method of government, their denominational relations, their value as centres of moral and intellectual influence, their financial resources, and, most important of all, their academic standards of work."

It was found that there are more than 950 institutions in the United States and Canada calling themselves colleges and universities. Of these some 850 are in the United States. An examination of the curricula, the income, and the work of these institutions showed that these names had in a large majority of cases been assumed with little regard to the meaning of the names, and little consideration of the difference between the work of a high school, a college, and a university. The trustees had to recognise that the pioneer stage of education had passed, and that it was necessary to standardise the higher institutions of learning.

They saw clearly that the nature of the requirements for admission to a college or university affects fundamentally the character of that institution. It was essential to enforce a reasonable standard—a standard which could be articulated with the work of the high schools, and enforced with care and judgment. The Carnegie Foundation, recognising that entrance requirements form the sole feasible means of securing a fair degree of unity in an educational system, had to reduce to a common method of expression the various systems in these 950 institutions, and to "define the amount of preparation which a college ought to demand of its matriculants." This definition had to rest upon the actual practice, and had to be formulated after a study of the curricula of the standard high schools. These schools require at least four subjects to be studied daily five times a week. Counting as a unit a study pursued in this way for a year, the ordinary high-school course would furnish sixteen such units in four years. The Carnegie Foundation, making allowance for certain possibilities, considers fourteen such units a fair measure of preparatory work, and fixes that number as the standard entrance requirement for any college which desires recognition. This standard demands not only four years of high-school training following upon good preliminary work in the grammar school, but involves a fair distribution of the time among different subjects. Some of the letters published in this report make it evident that this is a standard at present somewhat beyond the reach of many southern colleges in view of the undeveloped condition of secondary education. But the following extract from the president of a Kentucky university proves the wisdom of the trustees in setting up a standard which is really satisfactory:—"There is a positive advantage in a standard which will make it necessary for every college president and professor in the South to become an active missionary for public school development. . . . I know of no stimulus so powerful and effective as the maintenance of the standard for all alike by the Carnegie Foundation." Another president writes:—"We need your standard more than we need your recognition." It is evident, therefore, that one of the results of the working of this trust will be a great forward movement in secondary and university education in districts where until recently all higher education was in a very backward condition.

Another result of the conditions laid down by the Foundation in accordance with Mr. Carnegie's wishes will be the gradual liberation of many colleges from obsolete sectarian limitations. For not only is an educational standard required, but those institutions alone are recognised in which no denominational or sectarian test is applied in the choice of trustees, officers, or teachers, or in the admission of students. The trustees of an institution applying for recognition must further testify that "no distinctly denominational tenets or doctrines are taught to the students." Several of the institutions recently admitted to the accepted list have obtained release from conditions which constituted a sectarian barrier. Bowdoin College had to surrender to a theological seminary a sum of fully 10,000*l.*, which it had accepted as an endowment with denominational conditions. The Central University of Kentucky, with some difficulty, obtained freedom from sectarian patronage so as to qualify itself for acceptance by this foundation. Doubtless many other colleges will struggle to get rid of their bonds, in order to obtain a place on the coveted list.

Another desirable result at which the policy of the trustees aims is the raising of the standard of professional education in America. The "schools of law and of medicine had, up to recent years, no common standards and no relation to the general system of education." The tendency has been to make these schools of law and of medicine a department of the university. The desire of the trustees is to foster this tendency, and so aid in removing commercialism, raising standards, and giving unity to professional training. The public interest will thus be safeguarded by the provision of a regular supply of educated men thoroughly trained as physicians or lawyers. Low standards are dangerous to the nation and demoralising to the profession.

The report before us contains a hint that the trustees hope to promote in the colleges and universities increased security of position by obtaining freedom from political as well as sectarian restrictions.

It is not long since political and denominational influence was rampant in university matters. Even during the last year two State universities suffered severely through political interference with their organisation. If the Carnegie Foundation can help to bring about a complete divorce of educational administration from politics it will have added a bright jewel to its crown.

According to the third report there are now sixty-two institutions which satisfy the requirements of the foundation, and are recognised as accepted institutions. To their professors the benefits of the foundation are extended through the institutions themselves. That is, if the professor has reached the age agreed upon, or has been in the teaching profession for a certain period of years, he will receive his retiring allowance as soon as his institution applies for it. The trustees have given special consideration to the professors whose active salary is low. They have adopted a scale under which such a teacher is granted a much higher percentage of his salary than is granted to one receiving a high salary. Any person sixty-five years of age, who has been a professor for at least fifteen years, shall receive a retiring allowance on the following scales:—

A. *Salary not more than* 1200 *dollars.*—An allowance of 1000 dollars, or not more than 90 per cent. of his salary.

B. *Salary above* 1200 *dollars.*—An allowance of 1000 dollars, increased by 50 dollars for each 100 dollars of salary above 1200 dollars.

No retiring allowance shall exceed 4000 dollars. This is 1000 dollars more than the limit originally fixed.

In these sixty-two accepted institutions there are already in force 116 retiring allowances, the average amount of which is 1600 dollars per annum.

The trustees have also from the beginning granted retiring allowances to certain professors not on the "accepted list." These grants have in all cases been made on the ground of distinguished and unusual service. When applications from individual professors are received each case is minutely considered by the trustees and judged upon its own merits. At present sixty-six such retiring allowances are in force, the average amount of which is fully 1400 dollars.

The foundation has also incorporated in its rules a recommendation of the executive committee that a pension be granted to the widow of a professor in an accepted institution who has been for ten years married to the professor. This widow's pension is to be one-half of what the husband would have been entitled to receive.

According to the report, pensions are at present granted to nine widows of professors in accepted institutions, and to six widows of professors not in accepted institutions. The average allowance in the former case is 963 dollars, in the latter case 680 dollars.

The trustees are to be congratulated on the wisdom and firmness of their administration of the foundation, and on the influence which they have already exercised upon the progress of higher education. The full effect of that influence is just beginning to be foreshadowed.

JOHN EDGAR.

GERMANY AND THE PATENTS AND DESIGNS ACT, 1907.

WE have received a report to the Secretary of the Department of Agriculture and Technical Instruction for Ireland on a visit to Germany made by a deputation in connection with the operations of the Patents and Designs Act, 1907. Section 27 of the Act provides that any person may apply to the Comptroller for the revocation of a patent on the ground that the patented article or process is manufactured or carried on exclusively or mainly outside the United Kingdom, and also provides that unless the patentee proves that the patented article or process is manufactured or carried on to an adequate extent within the United Kingdom, or gives satisfactory reasons why this is not the case, the Comptroller may revoke the patent either forthwith or after a reasonable interval.

The wording of this section clearly suggests that a patentee who manufactures an article or carries on a process exclusively or mainly abroad runs a grave risk of having his patent revoked under the sanctioned procedure, and considerable alarm has been manifested by foreign patentees in consequence. They have hoped against hope that the section does not mean what it says, or at least that it will be interpreted to mean something quite different, and now that it is being borne in upon them that the section will be construed to mean exactly what it says, they are making very sincere attempts, in some cases, to comply with the plain requirements of the section.

One way of complying with the requirements and of thus avoiding the risk of revocation is obviously to work the patent in the United Kingdom, and there have been many inquiries from foreign patentees as to the feasibility of taking this course. There have been, on the other hand, numerous attempts to bring to the notice of such foreign patentees the advantages of particular places in the United Kingdom for the establishment of industries, and the chief object of this visit to Germany was to interest foreign manufacturers who might be affected by the Act in the opportunities for industrial enterprise now being offered in Ireland. When it is remembered that in the year 1906 more than 6000 patents were granted to foreigners, it is clear that the object of the visit might easily have been defeated by attempting too much, and, in order that this might not occur, the members of the deputation wisely decided to devote their energies particularly to industries specially suitable for introduction into Ireland. In seeking for such industries, they were of opinion that it was undesirable to concern themselves with industries already established in Ireland and capable of further development from within, and they were finally led to limit the object of the visit to an attempt to convince the directors of certain chemical industries, such as those concerned with the manufacture of anilin dyes, and certain electrical industries, that the conditions which exist in Ireland are specially suited to the requirements of these industries.

Most of the important centres of these industries in Germany were visited, and the report contains an account of the wonderful development which Germany has made in these industries during the last quarter of a century. Of their visit to Berlin they state that

> We seized the opportunity of visiting the largest of the electrical firms—the Allgemeine Electricitäts Gesellschaft (known familiarly and shortly as the A.E.G.), which last year celebrated the twenty-fifth anniversary of its inauguration. The development of this company has been phenomenal. Founded in 1883, with a capital of 250,000*l.*, it has to-day a capital of 5,000,000*l.*—including debentures and reserves, 9,200,000*l.* From the manufacture of dynamos, motors, and lamps it developed and erected in 1885 an Electric Power Station in Berlin, which developed into the Berlin Electrical Works, where they manufacture a great variety of electrical plant, and, keeping pace with every new discovery, are now manufacturing the metal-filament lamps which threaten to displace the carbon-filament lamps. Since 1885 it has erected power stations in nearly 700 German and foreign towns. It then took up electric traction, and has constructed a large number of electric railways. It has a vast number of agencies in Germany and other countries.

At Ludwigshafen,

> We were fortunate in being able to see a portion, at least, of the well-known works of the Badische Anilin-und Soda-Fabrik at Ludwigshafen. By the kindness of the head of their Patents Department, Dr. Ehrhardt, and Dr. Lloyd, his assistant (both from Birmingham), we were